

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 January 2005 (06.01.2005)

PCT

(10) International Publication Number
WO 2005/001396 A1

(51) International Patent Classification⁷: **G01F 11/00**,
B65G 53/52, B01F 3/18, 15/04

(21) International Application Number:
PCT/GB2004/002718

(22) International Filing Date: 24 June 2004 (24.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0315094.3 27 June 2003 (27.06.2003) GB

(71) Applicant (for all designated States except US): **IM-
PERIAL COLLEGE INNOVATIONS LIMITED**
[GB/GB]; Sherfield Building, London SW7 2AZ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VILKNER, Torsten**
[DE/DE]; Am Ryck 12g, 17493 Greifswald (DE). **MANZ,**
Andreas [CH/GB]; 14 The Wilderness, East Molesey, Sur-
reys KT8 0JT (GB).

(74) Agents: **HIBBERT, Juliet** et al.; Kilburn & Strode, 20 Red
Lion Street, London WC1R 4PJ (GB).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

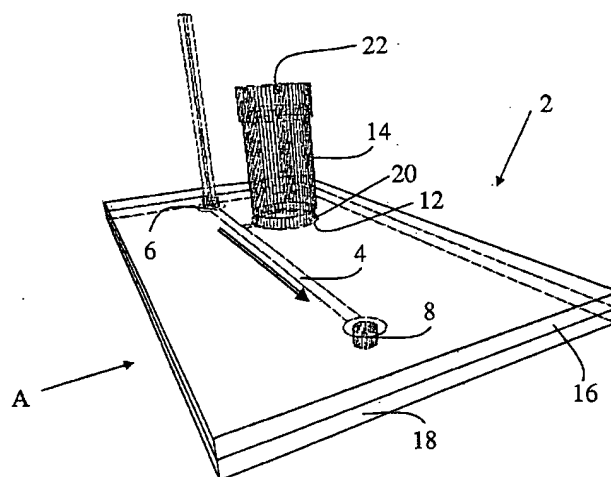
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **POWDER INJECTION SYSTEM AND METHOD**



(57) Abstract: A powder injection method and a powder injection microchip, the powder injection microchip comprising: a gas supply inlet (6) for supplying gas; an outlet (8); a channel (4) in fluid connection with the gas supply inlet and the outlet; a powder inlet (12) in fluid connection with the channel, for receiving a first, open end of a powder reservoir (14), the powder reservoir having an opening (22) at or near to a second end of the powder reservoir to allow egress of gas from the powder reservoir at a point distal to the first end of the powder reservoir. The method comprises the steps of: i) supplying gas via the gas supply inlet (6) to the channel (4) and the powder inlet (12) at a velocity sufficient to cause fluidisation of powder at the powder inlet (12); ii) reducing the supply of gas to cause powder to pass from the powder inlet and to collect in a region of the channel adjacent a point where the powder inlet connects with the channel; and (iii) repeating steps (i) and (ii) as many times as required, subsequent initialisation of step (i) causing the powder collected in the channel to be moved by the gas towards the outlet.

WO 2005/001396 A1